

LITERATURE REVIEW

INTRODUCTION

The Chord Method can help NCDOT field engineers quickly and reliably evaluate the existing superelevation rate and radius for any curve against current AASHTO design standards. Documentation of literature findings on the best practices for crash reconstruction practices will also help in future investigations by NCDOT. AASHTO design superelevation criteria for maximum superelevation, design superelevation, design speed, and minimum radius were also examined.

STATE OF THE PRACTICE

Curve Investigation Techniques

An investigation in Texas compared the accuracy of ten curve radius estimating procedures (Carlson, Burris, Black, & Rose, 2005). The research compared each of the methods to the field survey which found that none of the methods were statistically inaccurate. The methods examined included:

- Basic ball bank indicator (BBI)
- Advanced BBI
- Chord length
- Compass
- Field survey
- Global Positioning System (GPS) unit
- Lateral acceleration
- Plan sheet
- Speed advisory plate
- Vehicle yaw rate

The advanced BBI and vehicle yaw rate methods were not examined past the initial stages of research. The GPS, plan sheet, and chord length methods had the smallest average relative errors of less than $\pm 5\%$. A cost analysis was conducted for each of the